the fall of an aërolite? Humboldt, in his *Kosmos*, mentions two such instances.

We also read in Cicero that the earthenware statue of the god (Summanus), which stood on the top of the Capitol of Rome, was shivered by lightning, and its head sent into the Tiber. Is not the distance very great? I have myself seen fragments of an elm-tree struck by lightning, in Eton Playing-fields, about ten years ago, driven to a distance of twenty-five yards. The fragments were several feet long, and some of them must have weighed ten or twelve pounds. I shall be thankful for any information on these matters. C. W. D.

NOTES

WE give elsewhere an account of the Anniversary Meeting of the Royal Society last Tuesday; one of the announcements made, however, we prefer to detail here. Dr. John Davy, brother of Sir Humphry Davy, has bequeathed to the Royal Society, in fulfilment of an expressed wish of his illustrious brother, a service of plate, presented to Sir Humphry Davy for the invention of the Safety Lamp, to be employed in founding a medal to be given annually for the most important discovery in chemistry made in Europe or Anglo-America. The directions given in the will, respecting the manner in which the plate should be disposed of, have been fulfilled, and the proceeds invested in India securities, yielding a little more than 30*l.* a year. The Council will determine the form of the medal, and specify the conditions under which it will be awarded.

THE Royal Institution Friday Evening Meetings are arranged to commence on the 21st of January. The evening discourses before Easter will probably be given by Prof. Tyndall, Prof. Odling, Prof. Ruskin, Dr. Carpenter, Mr. Clifford, Prof. Sylvester, Dr. Rolleston, Prof. Roscoe, Prof. Huxley, Prof. Williamson, and Dr. Blackie. The Christmas lectures (adapted to a juvenile auditory) will be by Prof. Tyndall, who has chosen Light for his subject: the first will be delivered on the 28th inst. at 3 o'clock. Arrangements have been made for the following courses before Easter:—On the Architecture of the Human Body, by Prof. Humphry, F.R.S.; on the Vegetable Products of Chemistry, by Prof. Odling, F.R.S.; on Meteorology, by Mr. Robert Scott; on Plant Life as contrasted with that of Animals, by Dr. Masters, F.L.S.; Deductions from the Comparative Anatomy of the Nervous System, by Prof. Rolleston, F.R.S.; an Introduction to the Science of Religion, by Prof. Max Müller; on the Sun, by J. Norman Lockyer, F.R.S. After Easter, the following courses will be delivered:—On the Principles of Moral and Political Philosophy, by Prof. Blackie; on Physics, by Prof. Tyndall, F.R.S.; on Astronomy, by Prof. Robert Grant, F.R.S.; on History, by Prof. Seeley.

IT is now generally understood that the Earl of Dunraven will not be a candidate for the presidentship of the Royal Irish Academy, and that the Rev. Professor Jellett, B.D., will be elected. Should this be so, we may look for a great revival in the scientific forces of the Academy.

AN important meeting has been held this week at Cambridge, for the purpose of considering the question of the abolition of university tests. The Master of Trinity quoted a remark made thirty-five years ago by the present Bishop of St. David's, to the effect that science, as well as literature, morality, and religion, would gain by such a measure; and from what we gather, the reading of this extract gave a tone to the meeting. Here are the resolutions passed:—Proposed by the Master of Trinity, seconded by the Venerable Professor Sedgwick: "That in the opinion of this meeting the time has come for settling the question of university tests; that the mode in which the question is dealt with in the permissive Bill introduced by Sir J. Coleridge is open to grave objections, and that any measure designed to effect such a settlement should include an enactment that no declaration of religious belief or profession should be required of any person upon obtaining a fellowship, or as a condition of its tenure." Proposed by the Master of Trinity, seconded by Prof. Maurice: "That a representation be drawn up and presented by a deputation to the Prime Minister embodying the resolution just passed; that a committee be appointed to draw up such a representation, consisting of the Master of St. John's, the Master of Trinity, the Master of Christ's, Professor Sedgwick, Professor Maurice, the University Librarian, Mr. Ferrers, Mr. Porter, and Mr. Phear; and that the representation, when drawn up, be circulated for signature among all masters, resident fellows, or resident ex-fellows, of colleges, or officers of the University or of any college."

CHRIST'S COLLEGE, Cambridge, makes a most liberal offer to students of natural science, viz. scholarships and exhibitions, in number from one to four, and in value from 30*l.* to 70*l.*, according to the number and merits of the candidates; that is to say, four well-informed students may each obtain a scholarship worth 70*l.* a year, and tenable for some years. The examinations will be on April 5th, 1870, and will be open to any one, whether a member of Christ's College or not, provided his name is not on the boards of any other college in Cambridge, and provided he is not of sufficient standing for B.A. It will be open, therefore, to all undergraduates of Oxford, and to non-collegiate students of Cambridge, as well as to all students who are not members of either University. The candidate may select for himself the subjects of examination, and must send his name, &c., to the Master of the College before March 29th. Further necessary information may be obtained from the Rev. W. Gunson, Tutor of the College.

PROFESSOR PRINGSTEIN has been elected a correspondent of the Academy of Sciences of Paris, to fill the vacancy caused by the death of Professor von Martius.

WE have received the following from our Dublin correspondent:—The Council of the Royal Dublin Society have appointed Mr. H. W. Dunlop, B.A. Dub., C.E., as temporary assistant librarian. The Science and Art Department, on condition that the Library of the Royal Dublin Society should be open to readers from 10 o'clock A.M. to 10 o'clock P.M. each day, Sundays and Holy Days excepted, assented to provide for the extra services of the staff of porters and for a temporary assistant librarian. Perhaps there is no other public library in Great Britain and Ireland that is so completely at the service of the public as this library; and there is none that for its size possesses a larger selection of modern foreign works on literature and science. Its great defect is a useful working catalogue, and it is to be hoped that the Science and Art Department, seeing how successfully the Committee has managed the affairs of this library, will not grudge them the small sum required to compile a catalogue. It may not be uninteresting to mention that the expense incurred in the binding of the works issued by the Patent Office amounts to an average of 50*l.* a year. The works are presented by the Patent Office to several public institutions in Ireland. But while some towns, such as Belfast, store them away in a lumber-room, in Dublin they are carefully arranged and substantially bound. The Library is now open from 10 o'clock A.M. to 10 o'clock P.M.

THE Board of Trinity College proceeded on Saturday last to the election of a librarian, and, somewhat to the surprise of the literary circle in Dublin, they adhered to their ancient custom, and elected one of their own body to this important post. The newly-elected librarian is the Rev. Dr. Malet, Senior Fellow and Senior Lecturer of Trinity College. Dr. Malet is well known as a numismatist. He is the author of a catalogue of Roman silver coins in Trinity College, Dublin, and there is no doubt will make both an efficient and popular librarian. The Rev. Dr. Dickson retains his position as assistant-librarian.

A SUBSCRIPTION list has been opened for the purpose of having a model of a bust of the late Professor J. Beete Jukes, by Mr. Watkins, copied in marble, the marble bust to be placed in the Gallery containing the collections of the Geological Survey of Ireland, of which survey Mr. Jukes was so long the acting director. Subscriptions are limited to a guinea, and only about 30*l.* remains to be collected out of the 70*l.* required.

THE death is announced of M. Henry Testot de Ferry, of Bussières, near Macon, the author of more than one treatise on archæo-geology. The work by which he is best known is an illustrated quarto pamphlet, "L'Anciennete de l'homme dans le Maconnais," published in 1867, which gives an account of some of his discoveries of flint implements both in caverns and in superficial deposits in the neighbourhood of Macon. He died at the early age of 43.

A SCIENTIFIC and literary society has just been formed at Winchester. The first meeting was held in the Hall of the Mechanics' Institute on Thursday evening last, at which an inaugural address was delivered by the Rev. C. A. Johns, of Winton House. Mr. Johns, in his address, which is published in one of the local newspapers, reviewed briefly some of the latest scientific discoveries, and suggested several subjects of inquiry within the range of the members of the new society. It appears that the microscope is one of the principal instruments of research with the Winchester naturalists, and hints were thrown out how this instrument might be usefully employed in this locality for the general promotion of science. In particular, a careful examination of the chalk of the neighbourhood was recommended for the purpose of determining to what extent it differed from, or was identical with, the *Porcupine* dredgings. After the address the meeting set to work to frame laws for the government of the society. Some discussion arose with regard to the name of the society, and the admission of ladies to the meetings. It was ultimately decided not to allow ladies to attend the ordinary monthly meetings, and the name agreed upon was "The Winchester and Hampshire Scientific and Literary Society." Mr. Johns was elected president, Dr. Neal treasurer, and Mr. Angall secretary; and ten other gentlemen consented to act with them as managing committee. The use of a large room was kindly offered to the society by Mr. Savage, and as the number of members is already 50, there seems every probability that the society will flourish.

WE learn from the Viennese correspondent of the *Standard* Newspaper that Karl Vogt is giving a course of six lectures at a Roman Catholic College in Vienna, on the Primitive Condition of Man. The first lecture was attended, we are told, by a crowded and highly respectable audience.

TWO Russian travellers, MM. Ewast and Logist, have applied to their Government for a concession to work some gold fields which they say they have discovered in Lapland. They passed a month in the district in question last summer. It is almost uninhabitable, being without vegetation of any kind, and the travellers were obliged to leave it, after obtaining nearly 60 ounces of fine gold, because they had exhausted all their provisions, and none were to be had on the spot.

Land and Water announces that Mr. Frank Buckland, Inspector of English Salmon Fisheries, and Mr. Archibald Young, Commissioner of Scotch Salmon Fisheries, have been appointed by the Government to inquire into the condition of the salmon fisheries of Scotland.

ACCORDING to the *British Medical Journal* the annual salaries of the professors in the Universities of Austria are in future to be uniform—1,800 florins, with an increase of 200 florins every fifth year. Hitherto, the rate of salary has been very various; being at Innsbruck and Lemberg 945 florins, in Vienna 1,680, in Prague 1,635; with a decennial increase of 300 florins.

THE Royal Horticultural Society of Ireland have decided on holding an extra spring show in March for hyacinths and other spring flowers.

THE whales which have been lately stranded on our own shores, one at Longniddry in the Firth of Forth, another at Langstone Harbour, near Portsmouth, and others elsewhere, have given rise to a discussion which promises to become interesting. Mr. Flower holds to the Longniddry whale being either *Balænoptera musculus*, or *B. Sibbaldii;* while Professor Turner of Edinburgh, together with other eminent Scotch naturalists, incline to regard it as an undescribed species. There is, we are glad to learn, every reason to hope that the skeleton will be preserved, in which case the species will be finally set at rest. The measurements of the whale are given by *Land and Water* as follows:—Extreme length 82ft., girth 34ft., length round jaws 39ft., from front of lower jaw to back of mouth 17ft. 9in., breadth across jaws 7ft. 9in., greatest expanse of tail 15ft. 9in., length of flipper 11ft., average length of baleen 30in. to 33in.; length of calf 20ft.

IT appears from the reports of the Viennese meteorologists on the storm which broke over the Austrian capital and other parts of the empire, that it was accompanied by a very remarkable variation in the atmospheric pressure at different points close to each other. Thus, at Lesina, the pressure was 13·5 millimetres, and at Lemberg 10·7 millimetres, under the normal pressure. The greatest variation was in the district round Vienna, where the storm was most violent. Between Bludenz and Ischl there was a difference of 1 millimetre in 6½ German miles, between Ischl and Vienna of one in 3½, and between Vienna and Lemberg of one in 11 only. In Northern Europe the barometer was low, and the thermometer high; in Southern Europe it was the reverse.

THE *Lyttelton Times* of June last gives a report of a meeting of the Philosophical Institute of Canterbury, N.Z., at which the President, Dr. Haast, F.R.S., read a paper on the Saurian Remains lately discovered by Mr. T. Cockburn Hood, F.G.S. in that province, and taken by him to Europe. The paper was accompanied by specimens and drawings: the latter were by Mr. Triphook, and represented the most valuable of the specimens. They differed from other saurian remains, and consisted of large slabs of stone enclosing the upper and lower jaws and part of the skull of a large saurian reptile of the Amphicælian sub-order of crocodilia, to which genera Teleosaurus belonged. It was calculated to have been from 18 to 20 feet in length. The author also stated that in Mr. Hood's collection there were a great many vertebræ, in one specimen fourteen dorsal vertebræ still connected together, which, from their bi-concave character, might have belonged to the same reptile, the impression of whose skull he had exhibited. There were also many bones belonging to Plesiosaurus, of which the principal ones formed part of the paddles or fins of those marine reptiles. The paper concluded by stating that many other bones of crocodilian reptiles were included in this collection, showing that New Zealand was at one time, like parts of the northern hemisphere, the abode of numerous large reptiles.

WE learn from the *Times* of Saturday last, that Canon Greenwell has recently been prosecuting his researches in the prehistoric tumuli with great success. The barrows examined are two very large round ones near Bridlington: they contained an unusual number of secondary interments, accompanied by a fine series of implements, pottery, &c. These tumuli possess a special point of interest in reference to the apparent displacement of the primary interment. We await with interest Canon Greenwell's report on this point. It is to be hoped that the numerous human remains discovered will be described by Dr. Thurnham, or some other competent anatomist skilled in craniology.

BALLOONERS will rejoice at hearing that Messrs. Hachette and Co. have issued a magnificent work on the Aërial Voyages of Glaisher, Camille Flammarion, W. de Fonvielle, and Gaston Tissandier. The illustrations are excellent.

Two handsome volumes devoted to the "Life and Letters of Faraday" have been issued by Messrs. Longmans, and received by us just as we were going to press. The author is the Secretary of the Royal Institution, Dr. Bence Jones, whose delightful memoir of Faraday communicated to the Royal Society last year has been perused with pleasure by all scientific men.

THE committee of the Council on Education have placed at the disposal of the University of Oxford two of the thirty exhibitions, value 25*l*. each, given by Sir Joseph Whitworth, to assist deserving students in competing for his scholarships in mechanical science.

BOTANY

Spontaneous Movements in Plants

M. LECOCQ, of Clermont Ferrand, records in the *Belgique Horticole* some singular spasmodic movements in the leaves of *Colocasia esculenta*. These motions bear no resemblance to those produced in the Sensitive plant by the warmth of the hand, but occur spontaneously independently of the action of the wind or of any external cause, at irregular intervals, and at different periods of the day and night. M. Lecocq describes the movement as a kind of trembling or quivering affecting the whole plant, sufficiently powerful to tinkle little bells attached to the branches, and on one occasion even to shake the pot in which the plant was contained, and to resist a pressure of the hand, the number of the pulsations varying from 100 to 120 per minute. He states that the *Colocasia* is destitute of the stomata with which the leaves of plants are generally provided, especially on their undersurface, and attributes the phenomenon to the incessant pulsations of the imprisoned sap.

Decomposition of Carbonic Acid by Leaves

M. P. P. DEHERAIN has been continuing his researches on the evaporation of water from the leaves of plants, and the decomposition by them of carbonic acid. His previous investigation had established the fact that these two functions of the leaves proceed *pari passu*, the same conditions favouring the one as the other; and that both are determined by the degree and nature of the light to which the leaves are exposed, and not by the temperature. He now attempts to show that it is not the intensity only of the light which determines the rapidity of the evaporation of the water, and of the decomposition of carbonic acid; but that certain rays of light are far more efficacious than others. A careful series of experiments on the submerged leaves of *Potamogeton crispus*, accurately weighing the quantity of gases emitted, showed that under the influence of yellow light 26·2 c.c. of gas were exhaled, while under the influence of blue rays of the same intensity the plant disengaged only 5·8 c.c. of gas in the same time. A repetition of the experiment established the following laws,—1st. That all the rays of light are not equally efficacious in determining the decomposition of carbonic acid. 2d. That even with the same intensity yellow and red rays act more powerfully than blue or violet. 3d. That the relation which has been established between decomposition and evaporation is maintained also with respect to the relative influence of different rays of light. [Comptes Rendus.]

New Coffee Fungus

THE Rev. M. J. Berkeley forwards to the *Gardener's Chronicle* a letter from the well-known botanist, Mr. Thwaites, of Ceylon, in which he speaks of the consternation caused among the coffee-planters of that island in consequence of the rapid increase of a parasitic Fungus in the coffee-plantations, causing the leaves to fall off before their proper time, and endangering the safety of the crop. It is a singular fact that among more than one thousand species of Fungus which have been received in this country from Ceylon this particular one does not occur; not only is it an entirely new species, but it is with difficulty referable to any recognised section, being intermediate between the true moulds and the *Uredos*. Mr. Berkeley establishes from it a new genus *Hermileia*.

A. W. B.

CHEMISTRY

Thallium Salts.—II.

MM. LAMY AND DES CLOISEAUX have again examined the thallous salts named below. The *ferro-cyanide*—

$$Tl_4FeCy_6 + 2Aq.$$

has a beautiful yellow colour, a density of 4·641, and is readily dehydrated by heat. Exposed to dry air, the crystals gradually lose their transparency. Water dissolves more of this than of potassic ferro-cyanide; the actual solubility is shown by the following numbers—

100 grm. water dissolve at 18° . . . 0·37 grm. ferro-cyanide
" " " at 101° . . . 3·93 " "

The crystalline type to which this salt belongs is a doubly oblique prism. It exhibits a high degree of double refraction; fine plates of it, cut parallel to the plane of cleavage, show a well-defined system of rings under the polariser. The crystals are very fragile.

Thallous tartrates and paratartrates are remarkable for the readiness with which they yield large and brilliant crystals. *Hydro-thallous tartrate*, $C_4H_5TlO_6$, generally crystallises in beautiful white prisms, which have a silky lustre, due to the presence of a number of longitudinal striæ; it is soluble in 122 parts of water at 15°, and in 6 parts of water at 101°. The density of the crystals is 3·496, and they are, as already found by Lang, optically and geometrically isomorphous with hydro-potassic tartrate. The *neutral tartrate* is prepared by adding thallous carbonate to boiling aqueous hydric tartrate, until alkalinity ensues. On cooling, large, transparent, lustrous crystals make their appearance; their specific gravity is 4·658; they are unalterable in air at the ordinary temperature; at 100°, however, they become opaque and anhydrous. They dissolve in five times their weight of water at 15°, and in a tenth of their weight of boiling water. The formula of this salt is—

$$2[C_4H_4Tl_2O_6].\ Aq.$$

It crystallises in forms belonging to the clino-rhombic system—

Plane angle of the base	106°59′26″
Plane angle of the lateral faces . . .	101°57′41″
Obliquity of the primitive prism . . .	110°23′00″

The double refraction is very energetic. The plane of the optic axes is normal to that of symmetry. The acute bisectrix is negative and perpendicular to the horizontal diagonal of the base. The horizontal dispersion is pretty decided, as is also the proper dispersion of the optic axes, ρ being $< \nu$. *Sodio-thallous tartrate*—

$$C_4H_4NaTlO_6 + 4Aq.$$

is prepared in the same manner as common Seignette salt, with which it agrees not only in composition, but also in figure; but it differs from that body in the orientation of its optic axes. The crystals are soluble in half their weight of water at 20°, and effloresce when handled. The acute bisectrix of the optic axes is negative and normal to the base; the dispersion, though considerable (with $\rho > \nu$), is much smaller than in the common Seignette salt. When redissolved in water, and allowed to evaporate spontaneously, the above compound yields a more complex tartrate, having the formula—

$$C_4H_4TlNaO_6 + C_4H_4Tl_2O_6,$$

and crystallising in the rhombic system. As regards form, it may be referred to a right rhomboidal prism of 98°40′, differing chiefly in height from the tartrate just described. The acute bisectrix is positive. *Thallio-stibiosylic tartrate*—

$$C_4H_4Tl(SbO)O_6 + Aq.$$

is less soluble in water than the corresponding potassic salt. The crystals are quite permanent, and have the specific gravity 3·99. Although geometrically isomorphous with the potassic salt, the two tartrates differ completely in optical properties. At 15° to 20° the optic axes are perfectly united for all the colours of the spectrum; but at 70° they separate to the extent of 20°—25°, in the plane passing through the principal diagonals of the bases of the primitive prism. Their acute bisectrix is negative; dispersion inappreciable. *Dithallous paratartrate* is anhydrous, has a density of 4·659, and is capable of crystallising in two distinct forms. The two forms, which both belong to the clino-rhombic system, are distinguished by the following numbers—

	Normal.	Irregular.
Plane angle of the base	68°55′56″	80°16′22″
Plane angle of the lateral faces . . .	90°16′24″	95° 9′36″
Obliquity of the primitive prism . . .	90°20′00″	96°45′00″

In both, however, the dispersion is weak, with $\rho > \nu$; the acute bisectrix is positive and the separation of the optic axes